

<b>AWARD/CONTRACT</b>		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING NONE	PAGE OF PAGES 1 25
2. CONTRACT (Proc Inst Ident) NO. HR0011-10-C-0049		3. EFFECTIVE DATE 26 FEB 2010		4. REQUISITION/PURCHASE REQUEST/PROJECT NO. 2077/00	
5. ISSUED BY DARPA CMO ATTN: ROBIN SWATLOSKI 3701 N FAIRFAX DR ARLINGTON VA 22203-1714		CODE HR0011	6. ADMINISTERED BY (If other than Item 5) DCMA NORTHERN CALIFORNIA P.O. BOX 232 700 EAST ROTH ROAD, BLDG 330 (LATHROP CA) FRENCH CAMP CA 95231-0232		CODE S0507A
7. NAME AND ADDRESS OF CONTRACTOR (No, street, city, county, state and zip code) SRI INTERNATIONAL 333 RAVENSWOOD AVE MENLO PARK CA 94025-3453			8. DELIVERY [ ] FOB ORIGIN [X] OTHER (See below)		
			9. DISCOUNT FOR PROMPT PAYMENT N/A		
			10. SUBMIT INVOICES 2 ITEM (4 copies unless otherwise specified) TO THE ADDRESS Section G SHOWN IN		
CODE 03652		FACILITY CODE			
11. SHIP TO/MARK FOR DARPA DR AARON LAZARUS ATTN: STRATEGIC TECHNOLOGY OFFICE 3701 NORTH FAIRFAX DRIVE ARLINGTON VA 22203-1714		CODE HR0011	12. PAYMENT WILL BE MADE BY DPAS COLUMBUS CENTER WEST ENTITLEMENT OPERATIONS P.O. BOX 182381 COLUMBUS OH 43218-2381		
13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: [ ] 10 U.S.C. 2534(c) [ ] 41 U.S.C. 253(c) [ ]			14. ACCOUNTING AND APPROPRIATION DATA See Schedule		
15A. ITEM NO	15B. SUPPLIES/SERVICES	15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
SEE SCHEDULE					

15G. TOTAL AMOUNT OF CONTRACT \$1,612,905.00

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CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17 [X] CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return) (copies to issuing office) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets in the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)		18 [ ] AWARD (Contractor is not required to sign this document) Your offer on Solicitation Number _____ including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.	
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19A. NAME AND TITLE OF SIGNER (Type or print) (b)(4)		20A. NAME OF CONTRACTING OFFICER Robin M. Swatloski, Contracting Officer TEL: 571-218-4542 EMAIL: Robin.Swatloski@darpa.mil	
19B. NAME OF CONTRACTOR (b)(4)	19C. DATE SIGNED 3/3/10	20B. UNITED STATES OF AMERICA (b)(6)	20C. DATE SIGNED 3/5/2010
BY _____ (Signature of person authorized to sign)		BY _____ (Signature of Contracting Officer)	

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STANDARD FORM 26 (REV. 4-2008)

Prescribed by GSA  
FAR (48 CFR) 53.214(a)

## Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0001	JP-8 from Coal via (b)(4) CPFF The Contractor shall furnish the necessary personnel, material, facilities, and other services as may be required to perform the work in accordance with the contract and Statement of Work from the Contractor's proposal, entitled "JP-8 from Coal via (b)(4) dated 01 June 2009 which is in possession of both parties. FOB: Destination AO No. Z077/00	(b)(4)	(b)(4)	\$1,612,905.00 \$1,612,905.00

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
000101	Funding for CLIN 0001 CPFF FOB: Destination AO No. Z077/00  ACRN AA	\$0.00	\$0.00	\$0.00 \$0.00   \$1,612,905.00

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0002	Reports and Deliverables CPFF The Contractor shall submit the reports and deliverables in accordance with the delivery schedule set forth in sections C-2 and F-2. Not separately priced (NSP) - included in cost of CLIN 0001. FOB: Destination AO No. Z077/00	\$0.00	\$0.00	\$0.00 NSP

## Section C - Descriptions and Specifications

## CLAUSES INCORPORATED BY FULL TEXT

## C-1 Scope of Work

(a) The Contractor shall furnish the necessary personnel, materials, facilities, and other services as may be required to perform Contract Line Items (CLINs) 0001 through 0002, in accordance with the Statement of Work, Attachment 1 hereto. The work and services to be performed hereunder shall be subject to the requirements and standards contained in the Contractor's proposal entitled "JP-8 from Coal via (b)(4) dated 01 June 2009, copies of which are in the possession of both parties.

(b) In the event of an inconsistency between the provisions of this contract and the Contractor's proposal, the inconsistency shall be resolved by giving precedence in the following order: (1) the contract, (2) the attachments to the contract, and then (3) the Contractor's proposal.  
(end of clause)

## C-2 Reports and Other Deliverables

(a) The Contractor shall submit the following reports and other deliverables in accordance with the delivery schedule set forth in Section F. Reports and other deliverables shall be submitted in writing, as defined in FAR 2.101, or as specified below:

## (1) R&amp;D STATUS REPORT

This brief narrative, not to exceed five pages in length, shall contain the following:

- (i) For first report only; the date work actually started.
- (ii) Description of progress during the reporting period, supported by reasons for any change in approach reported previously
- (iii) Planned activities and milestones for the next reporting period.
- (iv) Description of any major items of experimental or special equipment purchased or constructed during the reporting period.
- (v) Notification of any changes in key personnel associated with the contract during the reporting period.
- (vi) Summary of substantive information derived from noteworthy trips, meetings, and special conferences held in connection with the contract during the reporting period.
- (vii) Summary of all problems or areas of concern.
- (viii) Related accomplishments since last report.
- (ix) Fiscal status, to include reporting of summary level financial data in the following format:  
(next page)



R&D STATUS REPORT  
PROGRAM FINANCIAL STATUS

Work Breakdown		Cumulative to Date			At Completion	
Structure or Task Element	Planned Expend	Actual Expend	% Budget Compl	At Compl	Latest Revised Estimate	Remarks
Subtotal: _____						
Management Reserve: _____						
Or Unallocated Resources: _____						
TOTAL: _____						

Note: Budget at completion changes only with the amount of any scope changes. (Not affected by underrun or overrun)

Based on currently authorized work:

Is current funding sufficient for the current fiscal year (FY)? (Explain in narrative if "NO")

YES NO

What is the next FY funding requirement at current anticipated levels?

\$ \_\_\_\_\_

Have you included in the report narrative any explanation of the above data and are they cross-referenced?

YES NO

(2) FINAL REPORT

This report shall document the results of the complete effort and should be delivered at the completion of the contract. If the Government chooses to exercise the options under this contract, the due date for the final report is extended accordingly. Title pages shall include a disclaimer worded substantially as follows:

"The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the official policies, either expressly or implied, of the Defense Advanced Research Projects Agency or the U.S. Government."

The Final Technical Report summary shall include:

Task Objectives  
Technical Problems  
General Methodology (i.e., literature review, laboratory experiments, surveys, etc.)  
Technical Results  
Important Findings and Conclusions  
Significant Hardware Development  
Special Comments  
Implications for Further Research  
Standard Form 298, August 1998

(b) Reports delivered by the Contractor in the performance of the contract shall be considered "Technical Data" as defined in Section I contract clauses entitled "Rights in Technical Data - Noncommercial Items" and "Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation."

(c) Bulky Reports shall be mailed by other than first-class mail unless the urgency of submission requires use of first-class mail. In this situation, one copy shall be mailed first-class and the remaining copies forwarded by less than first-class.

(d) All papers and articles published as a result of DARPA sponsored research shall include a statement reflecting the sponsorship. In addition, a bibliography of the titles and authors of all such papers are to be included in the Final Technical Report

(1) The cover or title page of each of the above reports or publications prepared, will have the following citation:

Sponsored by  
Defense Advanced Research Projects Agency  
Strategic Technology Office (STO)  
Program: JP-8 from Coal via Methanol  
ARPA Order No. Z077/00, Program Code: 9620  
Issued by DARPA/CMO under Contract No. HR0011-10-0049

(2) The title page shall include a disclaimer worded substantially as follows:

"The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the official policies, either expressly or implied, of the Defense Advanced Research Projects Agency or the U.S. Government."

(3) All technical reports must (i) be prepared in accordance with American National Standards Institute (ANSI) Standard Z39.18; (ii) include a Standard Form 298, August 1998; and (iii) be marked with an appropriate Distribution Statement.

(end of clause)

Section D - Packaging and Marking

CLAUSES INCORPORATED BY FULL TEXT

D-1 Packaging and Marking

All items shall be preserved, packaged, packed and marked in accordance with best commercial practices to meet the packing requirements of the carrier, and to ensure safe delivery at destination.  
(end of clause)

## Section E - Inspection and Acceptance

## INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	Destination	Government	Destination	Government
000101	N/A	N/A	N/A	N/A
0002	Destination	Government	Destination	Government

## CLAUSES INCORPORATED BY REFERENCE

52.246-8	Inspection Of Research And Development Cost Reimbursement	MAY 2001
252.246-7000	Material Inspection And Receiving Report	MAR 2008

## Section F - Deliveries or Performance

## DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	28-FEB-2011		DARPA DR. AARON LAZARUS ATTN: STRATEGIC TECHNOLOGY OFFICE 3701 NORTH FAIRFAX DRIVE ARLINGTON VA 22203-1714 703-526-4767 FOB: Destination	HR0011
000101	28-FEB-2011		(SAME AS PREVIOUS LOCATION) FOB: Destination	HR0011
0002	28-FEB-2011		(SAME AS PREVIOUS LOCATION) FOB: Destination	HR0011

## CLAUSES INCORPORATED BY REFERENCE

52.242-15 Alt I	Stop-Work Order (Aug 1989) - Alternate I	APR 1984
52.247-34	F.O.B. Destination	NOV 1991

## CLAUSES INCORPORATED BY FULL TEXT

## F-1 Term of Contract

The term of the contract commences on the effective date of the contract and continues through 28 FEB 2011.  
(end of clause)

## F-2 Reports and Other Deliverables

Delivery of all reports and other deliverables (listed in this contract and the SOW) shall be made to the addressee specified in F-3 entitled "Report Distribution" in accordance with the following:

Description	Deliverable Description	Due Date
Kickoff Meeting	Program plan, system design, test plans, test reports, schedule, technical status, materials and minutes. Minutes to include location, date, participants, discussion, decisions and action items.	Upon contract execution.

Monthly R&D Status Report	Cost, schedule and technical status. Technical updates will provide key experimental results, analysis of those results, implications for the program and plans for the following month.	On a monthly basis; within five (5) working days after the end of the previous reporting month.
Final Report	<p>Detailed cost analysis showing how contractor's proposed concept addresses government economic viability metrics.</p> <p>Detailed process analysis showing how the proposed concept addresses government environmental impact metrics.</p> <p>Report detailing the experimental data obtained during the proposed feasibility demonstration effort and how the data relates to the proposed quantitative goals as well as the coal to liquid program metrics.</p> <p>Collected data will be provided to government in a format (documentation, data format, etc.) so as to be useful to future efforts.</p>	Upon completion of the contract
Final Review	A summary presentation that discusses the degree to which the feasibility demonstration project has provided "proof of concept" for the government coal to liquid program metrics and overall vision. Materials and minutes. Minutes to include location, date, participants, discussion, decisions and action items.	Prior to completion of contract and release of Final Report

(end of clause)

## F-3 Report Distribution

## (a) DARPA/STO

Attn: Dr. Aaron Lazarus, Program Manager  
 3701 North Fairfax Drive  
 Arlington, VA 22203-1714  
 Email: [Aaron.Lazarus@darpa.mil](mailto:Aaron.Lazarus@darpa.mil)  
 (one copy each report)

## (b) DARPA/STO

Attn: Patrick Bailey, ADPM  
 3701 North Fairfax Drive  
 Arlington, VA 22203-1714  
 Phone: (703) 696-5277

Fax: (703) 807-0968  
Email: [Patrick.Bailey@darpa.mil](mailto:Patrick.Bailey@darpa.mil)  
(one copy each report)

(c) DARPA/Library  
3701 North Fairfax Drive  
Arlington, VA 22203-1714  
Email: [library@darpa.mil](mailto:library@darpa.mil)  
(one copy of the Final Technical Report)

(d) Defense Technical Information Center

(1) Email: [TR@dtic.mil](mailto:TR@dtic.mil)  
(one electronic copy of the Final Technical Report, if unclassified)

OR

(2) Attn: DTIC-BCS  
8725 John J. Kingman Road, Suite 0944  
Fort Belvoir, VA 22060-0944  
(two hard copies of the Final Technical Report if unclassified)

(e) DARPA/CMO  
Attn: Robin Swatloski, Contracting Officer  
3701 North Fairfax Drive  
Arlington, VA 22203-1714  
Phone: (571) 218-4542  
Fax: (703) 741-7801  
Email: [Robin.Swatloski@darpa.mil](mailto:Robin.Swatloski@darpa.mil)  
(one copy each report)

(f) COR  
Attn: Ralph A. Anthenien  
U.S. Army Research Office  
P.O. Box 12211  
Research Triangle Park, NC 27709-2211  
Email: [ralph.anthenien1@us.army.mil](mailto:ralph.anthenien1@us.army.mil)  
(one copy each report)  
(end of clause)

F-4 Notice Regarding Late Delivery

In the event the Contractor anticipates difficulty in complying with the contract delivery schedule, the Contractor shall immediately notify the Contracting Officer in writing, giving pertinent details, including the date by which it expects to make delivery; PROVIDED, however, that this date shall be informational only in character and the receipt thereof shall not be construed as a waiver by the Government of any contract delivery schedule, or any rights or remedies provided by law or under this contract.  
(end of clause)

## Section G - Contract Administration Data

## ACCOUNTING AND APPROPRIATION DATA

AA: 9790400 1320 Z077 P9620 2525 DPAC 9 5452 S12136 62715E  
 AMOUNT: \$1,612,905.00  
 CIN 00000000000000000000000000000000: \$1,612,905.00

## CLAUSES INCORPORATED BY FULL TEXT

## G-1 Procuring Office Representative

The Procuring Office Representative is Robin Swatoski, DARPA/CMO, 3701 North Fairfax Drive, Arlington, VA 22203-1714, telephone: 571-218-4542, e-mail: robin.swatloski@darpa.mil.  
 (end of clause)

## G-2 Electronic Submission of Payment Requests

(a) Invoices for goods received or services rendered under this contract shall be submitted electronically through Wide Area Work Flow – Receipt and Acceptance (WAWF):

(1) Vendors that have never used WAWF shall follow the directions in the WAWF Vendor Getting Started Guide available at the following website:  
<http://www.dfas.mil/contractorpay/electroniccommerce/wideareaworkflow.html>. This website also contains links for Vendor training and practice. Additional support can be obtained by calling WAWF Customer Service at 866-618-5988.

(2) Back up documentation (such as timesheets, monthly status reports, etc.) can be included and attached to the invoice in WAWF. Attachments should be in PDF format, but Attachments created in any Microsoft Office product may be attached. Total limit for the size of files per invoice is 5 megabytes.

(b) The following information, regarding invoice routing DoDAAC's, must be entered for completion of the invoice in WAWF:

WAWF Invoice Type:	Cost Voucher
Issuing Office DoDAAC	HR0011
Admin Office DoDAAC	S0507A
Service Acceptor DoDAAC	S0507A
DCAA Office DoDAAC (Used on Cost Vouchers only)	HAA052
Paying Office DoDAAC	HQ0339

(c) Cost Vouchers from Contractors approved by DCAA for direct billing will be directly routed to DFAS. Cost Vouchers from Contractors not approved for direct billing will be routed to DCAA for approval before the Cost Voucher is routed to DFAS. All Final Cost Voucher submissions will be routed to the Service Approver for approval. The DCAA office for this award is:



DCAA: Peninsula Branch Office- 04281  
 DoDAAC: HAA052  
 480 San Antonio Road, Suite 150  
 Mountain View, CA 94040-1218

(d) For each invoice/cost voucher submitted for payment, the contractor shall also e-mail the WAWF automated invoice notice directly to the following points of contact:

Name	E-mail	Phone	Role
Ralph A. Anthenien	ralph.anthenien1@us.army.mil	919-549-4317	COR
Robin Swatloski	robin.swatloski@darpa.mil	571-218-4542	CO

(end of clause)

#### G-3 Delegation of Authority for Contract Administration

DCMA Northern California- S0507A (Patricia A. Tillman, ACO, [Patricia.Tillman@dcma.mil](mailto:Patricia.Tillman@dcma.mil), (209) 941-7019), is hereby designated as the Contracting Officer's authorized representative for administering this contract in accordance with current directives.

(end of clause)

#### G-4 Contracting Officer's Representative (COR)

(a) Performance of work under this contract shall be subject to the technical direction of Ralph A. Anthenien at U.S. Army Research Office, P.O. Box 12211, Research Triangle Park, NC 27709-2211, telephone 919-549-4317, e-mail: [ralph.anthenien1@us.army.mil](mailto:ralph.anthenien1@us.army.mil). Such technical direction includes those instructions to the Contractor necessary to accomplish the Statement of Work. The COR is not otherwise authorized to make any representations or commitments of any kind on behalf of the Contracting Officer or the Government. The COR does not have the authority to alter the Contractor's obligations or to change the specifications of the contract.

(b) Technical direction shall not include any direction which:

- (1) Constitutes additional work outside the scope of work;
- (2) Constitutes a change as defined in Section I contract clause entitled "Changes";
- (3) In any manner causes an increase or decrease in the total estimated cost or the time required for contract performance; or
- (4) Changes any of the stated terms, conditions, or specifications of the contract.

(end of clause)

#### G-5 Payment Instructions for Multiple Accounting Classification Citations

Payments under contract line items funded by multiple accounting classification citations shall be made from the earliest available fiscal year funding sources. The earliest assigned ACRN must be fully disbursed before making disbursements from a succeeding ACRN.

(end of clause)

#### G-6 Contract Funding

The contract is fully funded.  
(end of clause)

G-7 Payment of Cost and Fee

As consideration for the proper performance of work required under this contract, the Contractor shall be paid as follows:

(1) Costs, as provided for under Section I contract clause titled "Allowable Cost and Payment" not to exceed the amount set forth as "Total Estimated Cost" in Section B, and subject further to those Section I clauses entitled "Limitation of Cost" or "Limitation of Funds".

(2) A fixed fee in the amount set forth as "Fixed Fee" in Section B, in accordance with the Section I contract clause entitled "Fixed Fee". The Contractor may bill on each invoice the amount of the fixed fee bearing the same percentage to the total fixed fee as the amount of cost billed bears to the total estimated cost.

(end of clause)

## Section H - Special Contract Requirements

## CLAUSES INCORPORATED BY FULL TEXT

## H-1 Contracting Officer

Notwithstanding any other provision of this contract, the Contracting Officer is the only individual authorized to redirect the effort or in any way amend or modify any of the terms of this contract. If, as a result of technical discussions, it is desirable to alter contract obligations or statement of work, a modification must be issued in writing and signed by the Contracting Officer.

(end of clause)

## H-2 Type of Contract

This is a Cost Plus Fixed Fee (CPFF) contract.

(end of clause)

## H-3 Public Release or Dissemination of Information

(a) There shall be no dissemination or publication, except within and between the Contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of the DARPA Technical Information Officer (DARPA/TIO). All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the Contractor. Papers resulting from unclassified contracted fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.

(b) When submitting material for written approval for open publication as described in subparagraph (a) above, the Contractor must submit a request for public release request to the DARPA TIO and include the following information: 1) Document Information: document title, document author, short plain-language description of technology discussed in the material (approx 30 words), number of pages (or minutes of video) and document type (briefing, report, abstract, article, or paper); 2) Event Information: event type (conference, principle investigator meeting, article or paper), event date, desired date for DARPA's approval; 3) DARPA Sponsor: DARPA Program Manager, DARPA office, and contract number; and 4) Contractor's Information: POC name, e-mail and phone. Allow four weeks for processing; due dates under four weeks require a justification. Unusual electronic file formats may require additional processing time. Requests can be sent either via e-mail to [tio@darpa.mil](mailto:tio@darpa.mil) or via 3701 North Fairfax Drive, Arlington VA 22203-1714, telephone (571) 218-4235. Refer to [www.darpa.mil/tio](http://www.darpa.mil/tio) for information about DARPA's public release process.

(end of clause)

## H-4 Key Personnel

(a) The Contractor shall notify the Contracting Officer prior to making any change in key personnel. Key personnel are defined as follows:

- (1) Personnel identified in the proposal as key individuals to be assigned for participation in the performance of the contract;
- (2) Personnel whose resumes were submitted with the proposal; or
- (3) Individuals who are designated as key personnel by agreement of the Government and the Contractor during negotiations.

(b) The Contractor must demonstrate that the qualifications of the prospective personnel are equal to or better than the qualifications of the personnel being replaced. Notwithstanding any of the foregoing provisions, key personnel shall be furnished unless the Contractor has demonstrated to the satisfaction of the COR that the qualifications of the proposed substitute personnel are equal to or better than the qualifications of the personnel being replaced.

(end of clause)

#### H-5 Restrictions on Printing

Unless otherwise authorized in writing by the Contracting Officer, reports, data, or other written material produced using funds provided by this contract and submitted hereunder shall be reproduced only by duplicating processes and shall not exceed 5,000 single page reports or a total of 25,000 pages of a multiple-page report. These restrictions do not preclude the writing, editing, preparation of manuscript or reproducible copy of related illustrative materials if required as part of this contract, or incidental printing such as forms or materials necessary to be used by the Contractor to respond to the terms of the contract.

(end of clause)

#### H-6 Contractor Representations and Certifications

The Contractor's Representations and Certifications dated December 18, 2009 are incorporated herein by reference.

(end of clause)

#### H-7 Insurance Schedule

The Contractor shall maintain the types of insurance listed in FAR 28.307-2 (a), (b) and (c), with the minimum amounts of liability indicated therein. The types of insurance coverage listed in paragraphs (d) and (e) shall also be maintained when applicable.

(end of clause)

#### H-8 Travel

(a) University Performers: Reimbursement for travel-related expenses shall be as stipulated in OMB Circular A-21 (2 CFR 220) as prescribed by FAR Part 31.3.

(b) Non-Profit Performers: Reimbursement for travel-related expenses shall be as stipulated in OMB Circular A-122 (2 CFR 230) as prescribed by FAR Part 31.7

(c) Non-University/For-Profit Performers: Reimbursement for travel-related expenses shall be in accordance with the Contractor's approved travel policy. The Federal Travel Regulations, Joint Travel Regulations (JTR), and Standardized Regulations as stated in FAR 31.205-46 will be used as a guide in determining reasonableness of per diem costs. Costs for travel shall be allowable subject to the provisions of FAR 31.205-46.

(d) In connection with direct charge to the contract of travel-related expenses, the Contractor shall hold travel to the minimum required to meet the objectives of the contract, and substantial deviations from the amount of travel agreed to during contract negotiation shall not be made without the authorization of the Contracting Officer.

When applicable, the Contractor shall notify the COR of proposed travel of an employee beyond that agreed to during negotiations.

(e) Approval of the Contracting Officer shall be obtained in advance for attendance by personnel at training courses, seminars, and other meetings not directly related to contract performance if the costs for the courses, seminars, and other meetings are charged to the contract.

(f) All foreign travel shall be authorized and approved in advance, in writing, by the Contracting Officer. Request for such travel must be submitted to the Contracting Officer at least forty-five (45) days in advance of traveler's anticipated departure date, and shall include traveler's itinerary of United States Flag Air Carriers.

(end of clause)

#### H-9 Metric System

(a) The Defense Advanced Research Projects Agency (DARPA) will consider the use of the metric system in all of its activities consistent with operational, economical, technical and safety requirements.

(b) The metric system will be considered for use in all new designs. When it is deemed not to be in the best interest of the DoD to provide metric design, justification shall be provided.

(c) Physical and operational interfaces between metric items and U.S. customary items will be designed to assure that interchangeability and interoperability will not be affected.

(d) Existing designs dimensioned in U.S. customary units will be converted to metric units only if determined to be necessary or advantageous. Unnecessary retrofit of existing systems with new metric components will be avoided where both the new metric and existing units are interchangeable and interoperable. Normally, the system of measurement in which an item is originally designed will be retained for the life of the item.

(e) During the metric transition phase hybrid metric and U.S. customary designs will be necessary and acceptable. Material components, parts, subassemblies, and semi-fabricated material, which are of adequate or when it is otherwise specifically determined to be in the best interest of the Department of Defense. Bulk materials will be specified and accepted in metric units when it is expedient or economical to do so.

(f) Technical reports, studies, and position papers, (except those pertaining to items dimensioned in U.S. customary units) will include metric units of measurement in addition to or in lieu of U.S. customary units. With respect to existing contracts, this requirement applies only if such documentation can be obtained without an increase in contract costs.

(g) Use of the dual dimensions (i.e., both metric and U.S. customary dimensions) on drawings will be avoided unless it is determined in specific instances that such usage will be beneficial. However, the use of tables on the document to translate dimensions from one system of measurement to the other is acceptable.

(end of clause)

#### H-10 Consent to Subcontract

(a) Pursuant to the clause of the General Provisions entitled "Subcontracts (JUN 2007)," FAR 52.244-2(j), the Contracting Officer hereby consents to the placement of subcontract(s) with the following firm(s)/consultant(s) at the ceiling amounts specified:

NAME

(b)(4)

TOTAL AMOUNT

As Proposed

(b) Approval must be obtained from the Administrative Contracting Officer to increase the use or number of subcontractors from the level established in subparagraph (a).

(end of clause)

## H-11 Small Business Subcontracting Plan and Goals

The Contractor's Small Business Subcontracting Plan, dated May 28, 2009, is incorporated herein and made a part of this contract by reference.  
(end of clause)

## H-12 Contractor-Acquired Property (Special Test Equipment)

(a) The Contractor is authorized to acquire the following items of special test equipment which are needed to accomplish this contract:

Items To Be AcquiredEstimated Cost

Equipment Listed In Contractor Cost Proposal

(b)(4)

(b) The costs incurred by the Contractor in acquiring the special test equipment listed in paragraph (a) above shall be considered allowable costs under the contract provided that the total net amount of the special test equipment does not exceed (b)(4). The Contractor shall have no obligation to acquire special test equipment and the Government shall have no obligation to reimburse any amount for special test equipment in excess of the amount set forth above unless the contract is amended to increase this amount.

(c) The special test equipment listed above shall be considered Government Property and shall be subject to the provisions of FAR 52.245-1 Alt II, incorporated by reference in Section I.

(d) The Contractor shall not use Contractor-acquired property listed above for work other than that performed pursuant to this contract unless so authorized in writing by the Contracting Officer.  
(end of clause)

## H-13 Proprietary Technical Data and Computer Software

Any deliverable technical data or computer software developed or generated at private expense and considered to be proprietary by the Contractor or subcontractors shall be delivered in accordance with DFARS 252.227-7013 and 252.227-7014. A list of such data and/or software is incorporated into the contract as Attachment No. 2.  
(end of clause)

## H-14 Contractor Code of Business Ethics

The "agency Office of the Inspector General" referenced in FAR clause 52.203-13, "Contractor Code of Business Ethics" (DEC 2008) contained in Section I of this Contract, shall be the Department of Defense Office of the Inspector General (DoD OIG). Contact information is as follows:

Office of the Inspector General  
United States Department of Defense  
Investigative Policy and Oversight  
Contract Disclosure Program  
400 Army Navy Drive, Suite 1037  
Arlington, VA 22202-4704  
Toll Free Telephone: 866-429-8011

(end of clause)

#### H-15 Export Control Clause

Should this project develop beyond fundamental research (basic and applied research ordinarily published and shared broadly within the scientific community) with military or dual-use applications the following apply:

(a) The contractor shall comply with all U. S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the Contractor shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

(b) The Contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technical data or software.

(c) The Contractor shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

(d) The Contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.  
(end of clause)

#### H-16 Invention Disclosure and Reports

All written communications required for invention disclosures and reports shall be submitted to the Administrative Contracting Officer (ACO). All unclassified required reporting shall be accomplished using the i-Edison.gov reporting website (<https://s-edison.info.nih.gov/iEdison/>).  
(end of clause)

## Section I - Contract Clauses

## CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	JUL 2004
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions On Subcontractor Sales To The Government	SEP 2006
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	SEP 2007
52.203-13	Contractor Code of Business Ethics and Conduct	DEC 2008
52.204-2	Security Requirements	AUG 1996
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	APR 2008
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	SEP 2006
52.211-5	Material Requirements	AUG 2000
52.215-2	Audit and Records--Negotiation	MAR 2009
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-9	Changes or Additions to Make-or-Buy Program	OCT 1997
52.215-10	Price Reduction for Defective Cost or Pricing Data	OCT 1997
52.215-12	Subcontractor Cost or Pricing Data	OCT 1997
52.215-14	Integrity of Unit Prices	OCT 1997
52.215-15	Pension Adjustments and Asset Reversions	OCT 2004
52.215-16	Facilities Capital Cost of Money	JUN 2003
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions	JUL 2005
52.215-19	Notification of Ownership Changes	OCT 1997
52.215-21	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data--Modifications	OCT 1997
52.216-7	Allowable Cost And Payment	DEC 2002
52.216-8	Fixed Fee	MAR 1997
52.219-8	Utilization of Small Business Concerns	MAY 2004
52.219-9	Small Business Subcontracting Plan	APR 2008
52.219-28	Post-Award Small Business Program Rerepresentation	APR 2009
52.222-2	Payment For Overtime Premiums	JUL 1990
52.222-3	Convict Labor	JUN 2003
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	MAR 2007
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	SEP 2006
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, and Other Eligible Veterans	SEP 2006
52.222-50	Combating Trafficking in Persons	FEB 2009
52.223-6	Drug-Free Workplace	MAY 2001
52.223-13	Certification of Toxic Chemical Release Reporting	AUG 2003
52.223-14	Toxic Chemical Release Reporting	AUG 2003



52.225-13	Restrictions on Certain Foreign Purchases	JUN 2008
52.226-1	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises	JUN 2000
52.227-1 Alt I	Authorization And Consent (Dec 2007) - Alternate I	APR 1984
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	DEC 2007
52.227-11	Patent Rights--Ownership By The Contractor	DEC 2007
52.228-7	Insurance--Liability To Third Persons	MAR 1996
52.230-2	Cost Accounting Standards	OCT 2008
52.230-4	Disclosure and Consistency of Cost Accounting Practices for Contracts Awarded to Foreign Concerns	OCT 2008
52.230-6	Administration of Cost Accounting Standards	MAR 2008
52.232-9	Limitation On Withholding Of Payments	APR 1984
52.232-17	Interest	OCT 2008
52.232-20	Limitation Of Cost	APR 1984
52.232-23	Assignment Of Claims	JAN 1986
52.232-25	Prompt Payment	OCT 2008
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	OCT 2003
52.233-1	Disputes	JUL 2002
52.233-2	Service Of Protest	SEP 2006
52.233-3 Alt I	Protest After Award (Aug 1996) - Alternate I	JUN 1985
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004
52.242-1	Notice of Intent to Disallow Costs	APR 1984
52.242-3	Penalties for Unallowable Costs	MAY 2001
52.242-4	Certification of Final Indirect Costs	JAN 1997
52.242-13	Bankruptcy	JUL 1995
52.243-2 Alt V	Changes--Cost-Reimbursement (Aug 1987) - Alternate V	APR 1984
52.244-2	Subcontracts	JUN 2007
52.244-5	Competition In Subcontracting	DEC 1996
52.244-6	Subcontracts for Commercial Items	DEC 2009
52.245-1 Alt II	Government Property (Jun 2007) Alternate II	JUN 2007
52.245-9	Use And Charges	JUN 2007
52.246-23	Limitation Of Liability	FEB 1997
52.249-6	Termination (Cost Reimbursement)	MAY 2004
52.249-14	Excusable Delays	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7000	Requirements Relating to Compensation of Former DoD Officials	JAN 2009
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2008
252.203-7002	Requirement to Inform Employees of Whistleblower Rights	JAN 2009
252.204-7000	Disclosure Of Information	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7004 Alt A	Central Contractor Registration (52.204-7) Alternate A	SEP 2007
252.204-7005	Oral Attestation of Security Responsibilities	NOV 2001
252.204-7006	Billing Instructions	OCT 2005
252.204-7009	Requirements Regarding Potential Access to Export-Controlled Items	JUL 2008
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	DEC 2006
252.211-7000	Acquisition Streamlining	DEC 1991

252.211-7007	Reporting of Government-Furnished Equipment in the DoD	NOV 2008
	Item Unique Identification (IUID) Registry	
252.215-7000	Pricing Adjustments	DEC 1991
252.215-7002	Cost Estimating System Requirements	DEC 2006
252.215-7004	Excessive Pass-Through Charges	MAY 2008
252.223-7002	Safety Precautions For Ammunition And Explosives	MAY 1994
252.223-7004	Drug Free Work Force	SEP 1988
252.225-7012	Preference For Certain Domestic Commodities	DEC 2008
252.225-7013	Duty-Free Entry	DEC 2009
252.225-7031	Secondary Arab Boycott Of Israel	JUN 2005
252.226-7001	Utilization of Indian Organizations and Indian-Owned Economic Enterprises, and Native Hawaiian Small Business Concerns	SEP 2004
252.227-7000	Non-estoppel	OCT 1966
252.227-7013	Rights in Technical Data--Noncommercial Items	NOV 1995
252.227-7014	Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation	JUN 1995
252.227-7015	Technical Data--Commercial Items	NOV 1995
252.227-7016	Rights in Bid or Proposal Information	JUN 1995
252.227-7019	Validation of Asserted Restrictions--Computer Software	JUN 1995
252.227-7027	Deferred Ordering Of Technical Data Or Computer Software	APR 1988
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7037	Validation of Restrictive Markings on Technical Data	SEP 1999
252.227-7039	Patents--Reporting Of Subject Inventions	APR 1990
252.231-7000	Supplemental Cost Principles	DEC 1991
252.232-7003	Electronic Submission of Payment Requests and Receiving Reports	MAR 2008
252.232-7010	Levies on Contract Payments	DEC 2006
252.235-7010	Acknowledgment of Support and Disclaimer	MAY 1995
252.235-7011	Final Scientific or Technical Report	NOV 2004
252.242-7004	Material Management And Accounting System	JUL 2009
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	AUG 2009
252.247-7023	Transportation of Supplies by Sea	MAY 2002
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

## CLAUSES INCORPORATED BY FULL TEXT

## 52.247-1 COMMERCIAL BILL OF LADING NOTATIONS (FEB 2006)

When the Contracting Officer authorizes supplies to be shipped on a commercial bill of lading and the Contractor will be reimbursed these transportation costs as direct allowable costs, the Contractor shall ensure before shipment is made that the commercial shipping documents are annotated with either of the following notations, as appropriate:

(a) If the Government is shown as the consignor or the consignee, the annotation shall be:

"Transportation is for the \_\_\_\_\_ and the actual total transportation charges paid to the carrier(s) by the consignor or consignee are assignable to, and shall be reimbursed by, the Government."

(b) If the Government is not shown as the consignor or the consignee, the annotation shall be:

"Transportation is for the \_\_\_\_\_ and the actual total transportation charges paid to the carrier(s) by the consignor or consignee shall be reimbursed by the Government, pursuant to cost-reimbursement contract no. \_\_\_\_\_. This may be confirmed by contacting \_\_\_\_\_."

(End of clause)

#### 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://farsite.hill.af.mil>

(End of clause)

#### 52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES (APR 1984)

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

(b) The use in this solicitation or contract of any Defense Federal Acquisition Regulation (48 CFR Part 201 et seq.) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of clause)

#### 252.225-7006 QUARTERLY REPORTING OF ACTUAL CONTRACT PERFORMANCE OUTSIDE THE UNITED STATES (MAY 2007)

(a) Definition. United States, as used in this clause, means the 50 States, the District of Columbia, and outlying areas.

(b) Reporting requirement. Except as provided in paragraph (c) of this clause, within 10 days after the end of each quarter of the Government's fiscal year, the Contractor shall report any subcontract, purchase, or intracompany transfer that--

(1) Will be or has been performed outside the United States;

(2) Exceeds the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation; and

(3) Has not been identified in a report for a previous quarter.

(c) Exception. Reporting under this clause is not required if--

(1) A foreign place of performance is the principal place of performance of the contract; and

(2) The Contractor specified the foreign place of performance in its offer.

(d) Submission of reports. The Contractor shall submit the reports required by this clause to: Deputy Director of Defense Procurement and Acquisition Policy (Contract Policy and International Contracting), OUSD(AT&L)DPAP(CPIC), Washington, DC 20301-3060.

(e) Report format. The Contractor--

(1) Shall submit reports using--

(i) DD Form 2139, Report of Contract Performance Outside the United States; or

(ii) A computer-generated report that contains all information required by DD Form 2139; and

(2) May obtain copies of DD Form 2139 from the Contracting Officer or via the Internet at <http://www.dtic.mil/whs/directives/infomgt/forms/formsprogram.htm>.

(f) Subcontracts. The Contractor--

(1) Shall include the substance of this clause in all first-tier subcontracts exceeding \$550,000, except those for commercial items, construction, ores, natural gases, utilities, petroleum products and crudes, timber (logs), or subsistence;

(2) Shall provide the number of this contract to its subcontractors required to submit reports under this clause; and

(3) Shall require the subcontractor, with respect to performance of its subcontract, to comply with the requirements directed to the Contractor in paragraphs (b) through (e) of this clause.

(End of clause)

Section J - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

DOCUMENT TYPE	DESCRIPTION
Attachment 1	Statement of Work (SOW)
Attachment 2	Asserted Rights

**SECTION III. DETAILED PROPOSAL INFORMATION****A. STATEMENT OF WORK**

Each task description below includes the task objective, performers, and associated subtasks, with summary approach and exit criteria, product, or deliverable. The schedule shown in Section III-I includes milestones and approximate start and stop dates. The proposal has been designed to incorporate checkpoints along the way to determine intermediate progress.

**Task 1: Design of Coal Gasification Experimental Approach (SRI)**

SRI's proposed approach is based on the (b)(4)

(b)(4) However, the configuration and operational details of the gasifier itself have not been finalized, since these rely on optimizing tradeoffs with respect to the five DARPA economic and environmental criteria (capital cost, operating cost, scalability, CO<sub>2</sub> emissions, and water use). Therefore, SRI proposes to examine in detail a matrix of different approaches to gasifier operation in this task. SRI does not propose to develop complete process and cost models for each approach, but rather gather and analyze enough information so that SRI, in collaboration with DARPA, can make a sensible down-selection of the particulars of the gasifier approach that is projected to best meet the overall program objectives (and a backup). The matrix will include basic reactor configuration (fluidized bed, entrained flow, or stirred bed), operational approaches (high-temperature vs. low-temperature and high-pressure vs. low-pressure operation), (b)(4)

(b)(4) A fluidized bed gasifier that has (b)(4)  
(b)(4) is the baseline gasification approach.

**Subtask 1.1: Obtain operational data related to each gasifier approach.** SRI will obtain overall system characteristic data (e.g., expected energy requirements, flow rates, product compositions) of the gasifier and any relevant downstream operations that are affected by varying the gasifier approach. Rather than developing a complete, optimized model for each of the gasifier configurations, SRI will use a preliminary process flow of the proposed concept (Subtask 4.1) to estimate effects of the gasifier approaches on the full process. Where data are not available, operational data will be estimated.

**Subtask 1.2: Analyze gasifier approaches.** SRI will quantify tradeoffs for each of the gasifier configurations with respect to the five DARPA metrics. We will work with the DARPA program manager to ensure realistic, qualitative rankings for each approach with respect to the economic and environmental trade-space where complete operational data are not available.

**Subtask 1.3: Down-select gasifier approach.** SRI proposes a Go/No-Go decision point for the project at the end of Task 1 based on DARPA's evaluation of the potential of the best gasifier approach to meet the DARPA economic and environmental criteria.

**Exit criteria:** Down-selection of the gasifier approach that has the best potential (plus backup) to meet the DARPA metrics.

**Deliverables:** A report detailing the analysis of each gasifier approach and justification of the down-selection of the gasifier approach to be used in subsequent tasks.

**Task 2: Coal Gasification** (b)(4)

In this task, we will demonstrate laboratory-scale coal gasification with (b)(4) to provide data for the full process model incorporating the gasifier approach selected in Task 1. We will modify our lab-scale gasification facility to install two different gasifier configurations, a lead candidate and a backup, chosen from options such as entrained flow, fluidized bed, fixed bed, and stirred bed, in combination with (b)(4). These two gasifiers will be tested at a variety of operating conditions to determine the most economic approach for scale-up. Task 2 is further described in Subtasks 2.1 to 2.4.

**Subtask 2.1: Determine equilibrium gasifier data from modeling.** (b)(4) will obtain operating conditions to use for laboratory-scale gasifier tests over relevant domains of temperature, pressure, and reactant compositions. Such data will be obtained using (b)(4) in-house software.

**Subtask 2.2: Determine initial gasifier data.** After the initial data are obtained from Subtask 2.1, laboratory-scale gasification experiments will be carried out in SRI's gasification facility. SRI will modify its existing gasification reactor to support data collection on (b)(4) the configuration requirements specified in Task 1. Two configurations will be tested at the lab-scale (the one chosen as most promising in Task 1, plus a backup). (b)(4) will support such experiments based on (a) (b)(4) experience and in-house modeling capabilities for this facility; (b) experience with other laboratory, pilot-scale, and commercial gasifiers; and (c) knowledge from the literature of appropriate reaction conditions for effective gasification of coal (b)(4).

(b)(4) In particular, (b)(4) will:

- (i) Obtain detailed operating conditions for all laboratory tests carried out by SRI staff over domains of furnace temperature, pressure, flow rates, and reactant compositions;
- (ii) Use (b)(4) in-house thermal analysis programs to determine flow-tube wall temperature profiles and radiant fluxes for all furnace conditions;
- (iii) Use (b)(4) to specify the parameters in global rate expressions for devolatilization and gasification for all coal samples;
- (iv) Incorporate the wall temperature and heat flux profiles and the assigned kinetic parameters into (b)(4) Fluent simulations of the p-RCFR;
- (v) Perform CFD simulations in Fluent to specify the mean temperature histories for fuel particles and gas along the reactor for every individual test in the program;
- (vi) Implement the assigned thermal histories in detailed simulations of the chemistry in both the fuel phase and the gas phase to interpret the reported syngas compositions in detail, and to finalize the assigned kinetic parameters.

**Subtask 2.3: Scale-up initial gasifier data to full scale.** (b)(4) will extrapolate the process performance from the laboratory scale datasets to the behavior in a gasifier large enough to produce the required syngas for a 100,000 bpd process. It is particularly important to utilize the experience and expertise of (b)(4) for the best possible scale-up in the case that the gasification in the p-RCFR does not proceed to completion, which could occur if the gasification kinetics are slow with respect to the flow rates imposed by the laboratory scale equipment and operational conditions. In particular, these extrapolations will entail:

- (i) Estimating operating conditions in various gasifier configurations;
- (ii) Simulating the chemistry in both the fuel phase and the gas phase to estimate syngas compositions at full-scale;
- (iii) Reduction of these analyses into formats that can be incorporated into SRI's process model;
- (iv) Implementation support for the process simulations;

**Subtask 2.4: Determine the next iteration of full-scale gasifier data.** The development of the full process model relies on an iterative approach between the modeling effort and the experimental effort to ensure that the gasifier data are obtained under the operating conditions that optimize the full set of DARPA metrics over the entire production process. Therefore, after completion of Subtasks 4.2 and 4.3 (which use the results of Subtasks 2.1-2.3), if the process needs to be substantially improved to meet the DARPA metrics, it may be necessary to carry out this subtask. This entails generating additional experimental gasifier data as in Subtasks 2.1-2.2 and scale-up of experimental data as in Subtask 2.3 under other operational scenarios to further improve the full JP-8 production process. These results will be used in Subtask 4.4.

**Exit criteria:** Operational data obtained for a full-scale (b)(4) that converts coal to primarily syngas that can be utilized in full-scale process and costing models.

**Deliverables:** A report detailing the data and analysis of the experiments described here and the scale-up results.

### Task 3: Syngas to JP-8 (SRI)

In this task, we will gather and analyze data from publicly available sources for the modeling effort for processes downstream of the gasifier. The technologies to produce JP-8 from syngas produced in the gasifier (b)(4) are in various stages of commercialization, including COTS technologies to near-COTS. SRI has already obtained preliminary operational data for many of the secondary unit operations that have already passed the "proof-of-concept" stage. It is expected that additional, detailed data is available directly from licensors, the patent literature, relevant consulting reports, and other publicly available sources to further refine the process and costing models. We will also explore the trade-offs of using the (b)(4)

(b)(4) process described here. As part of this task, SRI plans to visit (b)(4) to discuss details of the operational and cost parameters of their version of each of the unit operations and to discuss their participation in the advisory board as well as potentially in any follow-on project. (A follow-on pilot plant phase for the project would demonstrate the downstream operations described below.)

**Subtask 3.1: Syngas cleanup.** SRI will obtain the process data, including the relevant capital and operating cost data, for the full coal-to-JP-8 process model with respect to syngas cleanup. This includes data for slag separation, carbonyl sulfide (COS) removal, ammonia (NH<sub>3</sub>) treatment, mercury removal, and hydrogen sulfide (H<sub>2</sub>S) removal. This is a relatively well-understood set of technologies with a variety of options from a number of vendors for each process step. In addition, SRI already has preliminary data for this subtask as part of a carbon capture technology project for an IGCC plant.

(b)(4)

**Exit criteria:** Operational data obtained for full-scale unit operations that convert primarily syngas produced in an upstream gasifier to JP-8 that can be utilized in full-scale process and costing models.



**Deliverables:** A report detailing the analysis of the data gathered here on the relevant unit operations.

#### **Task 4: System Integration (SRI)**

These models will be used in an iterative manner to support the gasifier down-selection (Task 1); the experimental laboratory work and the (b)(4) gasifier modeling effort (Task 2); and gathering and analyzing operational data for secondary unit operations (Task 3); by providing guidance as to the most desirable conditions for each operation such that the full process is optimized with respect to the DARPA metrics.

**Subtask 4.1: Refine preliminary full process model.** SRI will refine the process model to be used in Task 1 before any significant modeling effort is undertaken as in subsequent tasks. SRI already has developed a preliminary full process model, so this subtask entails updating all assumptions and simplifications; ensuring that all operational data is based on the best information SRI has gathered to date; and incorporating feedback from the DARPA program manager.

**Subtask 4.2: Develop detailed full-scale process model.** SRI will incorporate data from Tasks 1 and 3 and Subtasks 2.1-2.4 into the full process model to simulate actual coal to JP-8 plant operation with all the required unit operations and peripheral equipment (e.g., recycle streams, heat exchangers, pumps, distillation columns) to demonstrate that the process can meet the DARPA metrics with respect to CO<sub>2</sub> production and water use. The model from this subtask serves as input to Subtask 4.3.

**Subtask 4.3: Estimate full process costs.** Using the process model data from Subtask 4.2, SRI will estimate production and capital costs for a full-scale process (100,000 bpd JP-8) and analyze these costs with respect to the DARPA metrics.

**Subtask 4.4: Determine the next iteration of the full-scale process model.** After completion of Subtasks 4.2 and 4.3, if the process needs to be substantially improved to meet the DARPA metrics, it may be necessary to carry out this subtask. This entails incorporation of the next set of gasifier data (Subtask 2.5) and refining the full-scale process model and costing.

**Exit criteria:** Full-scale process successfully modeled in Aspen Plus that converts coal (b)(4) to JP-8 that best meets the DARPA metrics. Operational and capital cost for such a process estimated.

**Deliverables:** A report detailing the full-scale process model and costing.

#### **Task 5: Project Management (SRI)**

The project manager will ensure timely execution of the tasks, adhere to budgetary constraints, resolve any conflicts of schedule that may arise from unforeseen events, manage the subcontractor, and maintain close liaison with the DARPA office. As part of this task, the project manager will consult with the DARPA program manager to select an advisory board of representatives of commercial organizations across the CTL value chain. Once the board is formed, we propose to have five working meetings in the second half of the project.

**Exit criteria:** If all five DARPA metrics are not met, a detailed analysis of the tradeoffs between the various approaches and their effects on the DARPA metrics will define the exit point of the project.

**Deliverables:** Progress updates via e-mail; timely written technical reports on Tasks 1 through 4 upon completion; a written summary report upon completion of all tasks; and materials and support for presentations upon request.

SRJ International  
Proposal No. PYU 324 09-020R)  
Contract No. HR0011-10-C-0049

## Attachment 2

### Asserted Rights

252.227-7017 IDENTIFICATION AND ASSERTION OF USE, RELEASE, OR DISCLOSURE  
RESTRICTIONS (JUN 1995)

(a) The terms used in this provision are defined in following clause or clauses contained in this solicitation-

(1) If a successful offeror will be required to deliver technical data, the Rights in Technical Data--Noncommercial Items clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.

(2) If a successful offeror will not be required to deliver technical data, the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.

(b) The identification and assertion requirements in this provision apply only to technical data, including computer software documents, or computer software to be delivered with other than unlimited rights. For contracts to be awarded under the Small Business Innovative Research Program, the notification requirements do not apply to technical data or computer software that will be generated under the resulting contract. Notification and identification is not required for restrictions based solely on copyright.

(c) Offers submitted in response to this solicitation shall identify, to the extent known at the time an offer is submitted to the Government, the technical data or computer software that the Offeror, its subcontractors or suppliers, or potential subcontractors or suppliers, assert should be furnished to the Government with restrictions on use, release, or disclosure.

(d) The Offeror's assertions, including the assertions of its subcontractors or suppliers or potential subcontractors or suppliers shall be submitted as an attachment to its offer in the following format, dated and signed by an official authorized to contractually obligate the Offeror:

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software.

The Offeror asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data or computer software should be restricted:

Technical Data or Computer Software to be Furnished With Restrictions *	Basis for Assertion **	Asserted Rights Category ***	Name of Person Asserting Restrictions ****
(LIST) *****	(LIST)	(LIST)	(LIST)
See Attachment I for IP Assertions			

\*For technical data (other than computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such item, component, or process. For computer software or computer software documentation identify the software or documentation.

SRI International  
Proposal No. PYU 324 09-020R1  
Contract No. HR0011-10-C-0049

\*\*Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions. For technical data, other than computer software documentation, development refers to development of the item, component, or process to which the data pertain. The Government's rights in computer software documentation generally may not be restricted. For computer software, development refers to the software. Indicate whether development was accomplished exclusively or partially at private expense. If development was not accomplished at private expense, or for computer software documentation, enter the specific basis for asserting restrictions.

\*\*\*Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited, restricted, or government purpose rights under this or a prior contract, or specially negotiated licenses).

\*\*\*Corporation, individual, or other person, as appropriate.

\*\*\*\*\*Enter "none" when all data or software will be submitted without restrictions.

Date 12/18/09

Printed Name and Title (b)(4)

(b)(4)

Signature

(End of identification and assertion)

(e) An offeror's failure to submit, complete, or sign the notification and identification required by paragraph (d) of this provision with its offer may render the offer ineligible for award.

(f) If the Offeror is awarded a contract, the assertions identified in paragraph (d) of this provision shall be listed in an attachment to that contract. Upon request by the Contracting Officer, the Offeror shall provide sufficient information to enable the Contracting Officer to evaluate any listed assertion.

(End of clause)

Attachment I

Intellectual Property IP Assertions  
SRI and Subcontractor forms

## SRI INTERNATIONAL REQUEST FOR PROPOSAL

Attachment "2"

(DARPA BAA 08-58)

### SRI INTERNATIONAL TEAM MEMBERS – IP DILIGENCE

#### Background

This BAA requires a significant level of detail to be submitted in the proposal regarding data rights, software rights, and patent rights that may be used by potential team members in performing the proposed work. As collecting this data can be time consuming, to ensure the highest probability of success the SRI team seeks to ensure that we can collect this information swiftly in order to complete the *Intellectual Property* section of the proposal in a mutually acceptable manner in plenty of time for submission.

This diligence form is designed to collect information from you, as a potential member of SRI's team, regarding existing software, data, and other intellectual property you envision may be included in proposed deliverable items. This includes items your institution developed, third-party open-source software, commercial software, and any patent rights you hold, or are otherwise aware of.

When your sub-contract proposal is received by SRI, your contracts person will be required to sign a good faith representation that the information identified on this form (as amended, if necessary) is complete, and that you either own or possess appropriate licensing rights in all identified materials.

Technical questions should be directed to: (b)(4)

Contract issues and questions should be directed to:

(b)(4)

(b)(4)



## INTELLECTUAL PROPERTY ASSERTIONS

SRI assertions are consistent with the referenced provisions, identified in Section I, Contract Clauses.

### Patents

Patent or Application #	First named Inventor	Filing Date	Title	Ownership
SRI Invention Disclosure (b)(4)	(b)(4)	11/05/2008	(b)(4)	SRI International
SRI Invention Disclosure (b)(4)		05/12/2009		SRI International
SRI Invention Disclosure (b)(4)		05/12/2009		

### Technical data

Technical Data / Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
NONE			

## SRI INTERNATIONAL REQUEST FOR PROPOSAL

### NON-COMMERCIAL COMPUTER SOFTWARE AND DATA

In the table below, please identify any *non-commercial* software or data that you envision using during the project or incorporating into your deliverables that will be provided with any restrictions on its use or distribution. If there are no such items, please state "None."

**Note:** Open-source software is considered "commercial" software under the relevant government regulations, and should be included in the table on the next page.

NONCOMMERCIAL			
Technical Data Computer software To Be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
None			



## SRI INTERNATIONAL REQUEST FOR PROPOSAL

### COMMERCIAL TECHNICAL DATA AND COMPUTER SOFTWARE

All proposers responding to this solicitation shall identify all commercial technical data, and commercial computer software that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government's use of such commercial technical data and/or commercial computer software. In the event of that the proposers do not submit the list, the Government will assume that that there are no restrictions on the Government's use of such commercial items. If no restrictions are intended, then please state "NONE".

COMMERCIAL			
Technical Data Computer software To Be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
None			

## SRI INTERNATIONAL REQUEST FOR PROPOSAL

### PATENTS AND PATENT APPLICATIONS (PART ONE: YOUR IP)

If your institution holds patents (or patent applications and invention disclosures) covering any aspect of the technology envisioned for use in the DARPA program, please identify them below. If you have patents and applications with foreign counterparts, please identify only the US version, and state "plus foreign."

For all patents and applications you identify, you will later be asked for additional information, including a representation from the person at your organization responsible for IP matters that your organization owns the patent and that it is available for licensing to other team members and to the Government.

US Patent or Application Number	Assignee	Relevant to what part of the DARPA Program?
(b)(4)		

## SRI INTERNATIONAL REQUEST FOR PROPOSAL

### PATENTS AND PATENT APPLICATIONS (PART TWO: THIRD PARTY IP)

If are aware of any patents (or patent applications) covering any aspect of the technology envisioned for the DARPA program that are owned by third parties, please identify them below.

For all patents and applications you identify, you will later be asked for additional information, including a representation from the person at your organization responsible for IP matters that your organization has sufficient rights to license the patent, or to describe your plan for obtaining those rights.

US Patent or Application Number	Assignee	Relevant to what part of the DARPA Program?

Date 5/28/2009

Printed Name and <sup>(b)(4)</sup>  
<sub>(b)(4)</sub>

Signature \_\_\_\_\_

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(b)(4)

(b)(4)

PAGE 01

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# Fax

To: (b)(4)

From: (b)(4)

Fax: (b)(4)

Pages: 4

Phone:

Date: 5/27/2009

Re: (b)(4)

CC:

☐ Urgent

☐ For Review

☐ Please Comment

☐ Please Reply

☐ Please Recycle

(b)(4)

**NON-COMMERCIAL COMPUTER SOFTWARE AND DATA**

In the table below, please identify any *non-commercial* software or data that you envision using during the project or incorporating into your deliverables that will be provided with any restrictions on its use or distribution. If there are no such items, please state "None."

Note: Open-source software is considered "commercial" software under the relevant government regulations, and should be included in the table on the next page.

NONCOMMERCIAL			
Technical Data Computer software To Be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(b)(4)	Anticipated use in project to interpret SRI lab data	(b)(4)	(b)(4)
	Anticipated use in project to interpret SRI lab data		

COMMERCIAL TECHNICAL DATA AND COMPUTER SOFTWARE

All proposers responding to this solicitation shall identify all commercial technical data, and commercial computer software that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government's use of such commercial technical data and/or commercial computer software. In the event of that the proposers do not submit the list, the Government will assume that there are no restrictions on the Government's use of such commercial items. If no restrictions are intended, then please state "NONE".

COMMERCIAL			
Technical Data Computer software To Be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(b)(4)	Anticipated use in project to interpret SRI lab data, and to estimate performance at commercial scale	(b)(4)	(b)(4)
	Anticipated use in project to estimate operating conditions for commercial coal gasifiers		

**PATENTS AND PATENT APPLICATIONS (PART ONE: YOUR IP)**

If your institution holds patents (or patent applications and invention disclosures) covering any aspect of the technology envisioned for use in the DARPA program, please identify them below. If you have patents and applications with foreign counterparts, please identify only the US version, and state "plus foreign."

For all patents and applications you identify, you will later be asked for additional information, including a representation from the person at your organization responsible for IP matters that your organization owns the patent and that it is available for licensing to other team members and to the Government.

US Patent or Application Number	Assignee	Relevant to what part of the DARPA Program?
None		

PATENTS AND PATENT APPLICATIONS (PART TWO: THIRD PARTY IP)

If are aware of any patents (or patent applications) covering any aspect of the technology envisioned for the DARPA program that are owned by third parties, please identify them below.

For all patents and applications you identify, you will later be asked for additional information, including a representation from the person at your organization responsible for IP matters that your organization has sufficient rights to license the patent, or to describe your plan for obtaining those rights.

US Patent or Application Number	Assignee	Relevant to what part of the DARPA Program?
None		

Date\_October 31, 2008\_

Printed Name and Title\_(b)(4)

Signature\_\_\_\_\_